

CLAIMS

1. A protein comprising the amino acid sequence of SEQ ID NO: 2 or 4.
- 5 2. A protein comprising the amino acid sequence of SEQ ID NO: 2 or 4 in which one or more amino acids are replaced, deleted, added, and/or inserted, having homology of 60% or higher to the amino acid sequence of SEQ ID NO: 2 or 4, and having a thioredoxin reductase activity.
- 10 3. A protein having a thioredoxin reductase activity, encoded by a DNA which hybridizes to the DNA comprising the nucleotide sequence of SEQ ID NO: 1 or 3.
4. A protein comprising the amino acid sequence of SEQ ID NO: 2 or 4 in which one or more amino acids are replaced,
15 deleted, added, and/or inserted and having an XIAP-binding activity.
5. A protein encoded by a DNA which hybridizes to the DNA comprising the nucleotide sequence of SEQ ID NO: 1 or 3, and having an XIAP-binding activity.
- 20 6. An antibody binding to the protein of any one of claims 1 to 5.
7. A cDNA encoding the protein of any one of claims 1 to 5.
8. A cDNA comprising a protein coding region of the
25 nucleotide sequence of SEQ ID NO: 1 or 3.
9. A vector into which the DNA of claim 7 or 8 has been inserted.
10. A transformant carrying the vector of claim 9.
11. A method for producing the protein of any one of
30 claims 1 to 5, the method containing culturing the transformant of claim 10.
12. An antisense DNA against all or a part of the cDNA of claim 7.
13. An oligonucleotide comprising a strand of at least
35 15 nucleotides and hybridizing to the cDNA of claim 7.
14. A DNA encoding a protein with a thioredoxin reductase activity and comprising the first exon or the second

exon, and the third to the nineteenth exons below:

- the first exon, SEQ ID NO: 18;
- the second exon, SEQ ID NO: 19;
- the third exon, SEQ ID NO: 20;
- 5 the fourth exon, SEQ ID NO: 21;
- the fifth exon, SEQ ID NO: 22;
- the sixth exon, SEQ ID NO: 23;
- the seventh exon, SEQ ID NO: 24;
- the eighth exon, SEQ ID NO: 25;
- 10 the ninth exon, SEQ ID NO: 26;
- the tenth exon, SEQ ID NO: 27;
- the eleventh exon, SEQ ID NO: 28;
- the twelfth exon, SEQ ID NO: 29;
- the thirteenth exon, SEQ ID NO: 30;
- 15 the fourteenth exon, SEQ ID NO: 31;
- the fifteenth exon, SEQ ID NO: 32;
- the sixteenth exon, SEQ ID NO: 33;
- the seventeenth exon, SEQ ID NO: 34;
- the eighteenth exon, SEQ ID NO: 35; and
- 20 the nineteenth exon, SEQ ID NO: 36.

15. The DNA of claim 14, described by SEQ ID NO: 37.

16. A DNA hybridizing to the nucleotide sequence of any one of SEQ ID NOS: 18 to 36 or a part thereof, which can hybridize to human chromosome 22q11.2.

- 25 17. A DNA which can hybridize to all or a part of a portion of the nucleotide sequence of SEQ ID NO: 37, the portion non-overlapping with the nucleotide sequences of SEQ ID NOS: 18 to 36.

- 30 18. A method for screening a compound having an activity of inhibiting a binding of XIAP with the binding factor, the method comprising the steps of:

(a) contacting simultaneously a candidate substance as a subject for screening, and XIAP with the protein of claim 2, or

- 35 (a)' contacting a candidate substance as a subject for screening with XIAP, and then, further contacting with the protein of claim 2,

(b) determining the amount of the protein of claim 2 which binds and/or does not bind to XIAP, and

(c) selecting a compound which inhibits binding of XIAP with the protein of claim 2.

5 19. A method for screening a compound having an activity of promoting or inhibiting an enzyme activity of thioredoxin reductase II, the method comprising the steps of:

(a) contacting a candidate substance as a subject for screening with the protein of any one of claims 1 to 3,

10 (b) observing the change in a thioredoxin reductase activity of the protein of any one of claims 1 to 3, and

(c) selecting a compound which promotes or inhibits an enzyme activity of thioredoxin reductase II.